

20. (new) A method for modifying the length distribution for the chains of a starch, in which the level of expression of endogenous α -1,4 glucanotransferase enzyme is decreased in the cells of the plant so that said plant produces a modified starch comprising an amylopectin that is enriched in chains containing less than 6 glucose residues, with respect to a starch produced naturally by the plant.

21. (new) The method according to claim 20, comprising the steps consisting of:

a) constructing an expression vector comprising an antisense nucleotide sequence of the gene encoding said α -1,4 glucanotransferase enzyme;

b) transforming a plant cell with said expression vector;

c) regenerating the plant from the cell transformed in step b, said transgenic plant thus obtained producing a starch comprising an amylopectin which is enriched in chains containing less than 6 glucose residues.

22. (new) The method according to claim 19, wherein said α -1,4 glucanotransferase enzyme is a D enzyme.

23. (new) The method according to claim 19, wherein said α -1,4 glucanotransferase enzyme is a protein comprising an

amino acid sequence encoded by the nucleotide sequence selected from the group consisting of sequence SEQ ID No. 1, and a sequence homologous to SEQ ID No. 1 that is at least 75% identical to SEQ ID No. 1 and that hybridizes specifically thereto under stringent conditions.

24. (new) A plant, or part of a plant, in which the level of expression of an α -1,4 glucanotransferase enzyme is increased in the cells of said plant so that said plant produces a modified starch comprising an amylopectin that is enriched in chains containing at least a glucose residue, with respect to a starch produced naturally by a plant.

25. (new) The plant or part of a plant according to claim 24, wherein said plant is selected from the group consisting of potato, wheat, maize and rice.

26. (new) A nucleic acid comprising a nucleotide sequence selected from the group consisting of sequence SEQ ID No. 1 and a fragment of this sequence encoding a protein having α -1,4 glucanotransferase enzymatic activity.

27. (new) A nucleic acid comprising a sequence which is complementary to the sequence according to claim 26.